
High Speed Rail
(London-West Midlands)
Local Environmental Management Plan
HEX Depot, Langley

December 2017





Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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1 Introduction

- 1.1.1 This Local Environmental Management Plan (LEMP) sets out site specific control measures to be adopted by HS2 Contractors working within the Slough Borough Council (SBC) and South Bucks District Council (SBDC) area. This LEMP builds upon, but does not repeat, the HS2 general environmental requirements set out in the Control of Construction Practice (CoCP) (available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/593592/Code_of_Construction_Practice.pdf).
- 1.1.2 This LEMP contains control measures and standards to be implemented within SBC and SBDC areas, in relation to the HEx Depot area. The sections within this LEMP should not be read in isolation from other sections due to the interconnected nature of the measures between disciplines.
- 1.1.3 For ease of reference, the LEMP mirrors the topic headings in the CoCP.
- 1.1.4 Information of relevance to the formation and development of this LEMP (as shown in Figure 1) is contained within this document, or links are provided to where it can be accessed. This includes:
- Information from traffic, environmental surveys and ground investigation works. This could either be seasonal ecological surveys, tree surveys, noise monitoring, ground settlement or the results of ground investigations detailing levels of contamination (where present) and the nature of the ground;
 - Feedback on pertinent information from on-going engagement; and
 - Results of petitions of the Parliamentary process which have resulted in amendments to the mitigation measures contained within the CoCP.



Figure 1: Key workstreams that will provide additional information for the LEMPs.

- 1.1.5 This LEMP has been prepared taking account of findings of the Supplementary Environmental Statement (SES) and Additional Provision (AP) 2 (AP2 ES) and the SES3 and AP4, where relevant. It has evolved during the Parliamentary process and

engagement with the Local Authority and other stakeholders, such as members of the National Environment Forum, which have informed its development. This LEMP may be subject to further refinement, amendment and expansion as necessary as the project design progresses.

- 1.1.6 The Contractors will implement the requirements of the LEMPs and the CoCP through their own Environmental Management System (EMS), which will be certified to BS EN ISO 14001.
- 1.1.7 The Nominated Undertaker (HS2 Ltd)¹ and/or its Contractors will continue to engage with the local stakeholders. This will take the form of engagement events which will be carried out to introduce and brief the communities on local environmental information, management and mitigation as detailed within this document.
- 1.1.8 The HS2 Environmental Memorandum identifies key worksites along the route of HS2 Phase One that are environmentally sensitive in terms of nature conservation, terrestrial and aquatic ecology, water resources, geomorphology, recreation and amenity, landscape, public open space and agricultural land. The criteria for inclusion are 'worksites where a key significant impact (that has been agreed with the HS2 National Environment Forum² members) is generated in any of the environmental topics' as mentioned above. There are currently no such sites identified within the proposed Heathrow Express (HEX) Depot, Langley vicinity.
- 1.1.9 The controls within this LEMP, as with those in the CoCP, are in line with HS2's Safe at Heart health and safety brand. Safe at Heart seeks to ensure that health and safety are at the heart of everything that we do including in the design, construction and operation of the scheme. This aim stretches beyond the scheme itself, through instruments such as this LEMP, and into the communities along the scheme to ensure that we protect their health, safety and wellbeing.
- 1.1.10 HS2 documents referenced within this LEMP can be found on the www.gov.uk website.

1.2 Area and scope

- 1.2.1 Plans showing an overview of the local authority area covered by this LEMP are shown on maps CT-05-154 and CT-05-155 in Volume 4, off-route effects map book of the SES and AP₂ ES, July 2015 and map CT-05-156 in Volume 4, off-route effects map book of the SES₃ and AP₄ ES, October 2015.
- 1.2.2 Construction worksites and areas required for construction works are also shown within the CT-05 maps.
- 1.2.3 The Enabling Works Contractors (EWC) are carrying out a range of survey and investigation works which commenced in early 2017. The EWC will also be carrying out some construction work including the provision of early ecological mitigation sites.

¹HS2 Ltd is the nominated undertaker. The two terms are used interchangeably throughout this LEMP.

² The National Environment Forum comprises Government departments and statutory bodies and was established to advise on environmental policy for HS2, including project-wide strategies for reducing the environmental impact of the line and principles for a Code of Construction Practice

- 1.2.4 Between July 2017 and autumn 2018, the Main Works Civils Contractors (MWCC) will be developing the design for the scheme, with a target for construction starting from early 2019.
- 1.2.5 It is anticipated that the following general descriptions of work activities are to take place during the construction period at the proposed HEx Depot site:
- advance works, including: site investigations and surveys further to those already undertaken, including ground investigations;
 - enabling works, including: utilities works in the wider area; highway and public right of way (PRoW) diversions; building demolitions; site clearance, habitat removal, creation and environmental mitigation measures;
 - civil engineering works including establishment of construction compounds, site preparation and enabling works, main earthworks and building structure works, site restoration, including implementation of mitigation measures such as landscaping, and removal of construction compounds;
 - railway installation works including establishment of construction compounds, infrastructure installation such as laying ballast or slabs and tracks and/or installing power supply and communications features, connections to utilities, changes to the existing rail network and removal of construction compounds; and
 - systems testing and commissioning.

2 Purpose of the Local Environmental Management Plan

- 2.1.1 This LEMP focuses on the specific control measures by topic as relevant to construction works at the proposed HEx depot site within SBC and SBDC local authority areas. The measures described will be applied by the Nominated Undertaker and its Contractors throughout the construction period to reduce the potential environmental impacts within the proposed Hex Depot area during construction.
- 2.1.2 The nominated undertaker's Contractors will develop detailed environmental site management mitigation through their EMS, taking into account this LEMP and the Environmental Minimum Requirements EMRs).
- 2.1.3 The Nominated Undertaker and its Contractor s will develop the detailed Environmental Management Plans, taking into account this LEMP and the Environmental Minimum Requirements. The detailed Environmental Management Plans will remain confidential due to contractual agreements. However, certain plans, such as the draft SSMPs, will be discussed with the relevant environmental bodies and NE. With regards to ESWs, the SSMPs will be submitted for information with relevant Schedule 17, or where appropriate heritage, applications.

3 Policy and environmental management principles

- 3.1.1 Information relating to the HS2 Ltd sustainability policy and environmental management principles is provided in Section 3 of the CoCP.

4 Implementation

- 4.1.1 Details relating to implementation, such as enforcement and site management measures, are provided in Section 4 of the CoCP.
- 4.1.2 On 16 November 2016 contracts were awarded for three Enabling Works Contractors (EWC) working on behalf of HS2 Ltd across Phase 1 of the project. The EWC covering the Langley area is Fusion, a joint venture between Morgan Sindall Infrastructure Services, BAM Nuttall Ltd and Ferrovial Agroman.
- 4.1.3 On 17 July 2017 contracts were awarded for HS2's Main Works Civils Contractors (MWCC). The MWCC for the Langley area is Align. Align is a joint venture between Bouygues Travaux Publics, VolkerFitzpatrick and Sir Robert McAlpine.

5 General requirements

- 5.1.1 General control measures relating to community relations, hours of work, pollution incident control and security etc. are identified in Section 5 of the CoCP.
- 5.1.2 To reduce the likelihood of an environmental incident or nuisance occurring, measures from Section 5 of the CoCP will be implemented, as detailed in sections 5.2 to 5.16 below.
- 5.1.3 HS2 and the Contractors will be running a series of engagement events and activities that will cover the upcoming programme of works and associated environmental controls where appropriate.

5.2 Community relations

- 5.2.1 As detailed within Section 5 of the CoCP, the Nominated Undertaker and its Contractors will implement the Community Engagement Framework. The framework will focus on engagement during construction with the local communities and on the specific needs of protected groups (as defined in the Equalities Act 2010) especially those who may be affected by construction impacts in the immediate vicinity of the works. A range of tools will be used to achieve this that will tailor engagement to local needs.
- 5.2.2 Successful management of the project will involve understanding communities and their needs, actively engaging, listening and responding. The arrangements for this are set out in the HS2 Community Engagement Framework. Liaison with the local community will take place to consistently provide timely, clear tailored information on the construction programme, updates on forthcoming works. It will also provide the opportunity for members of the public to respond, discuss issues and provide feedback

that can be acted upon. This information will be included in the local area plan for community engagement. Fusion has initiated engagement along the route via focussed engagement events.

5.2.3 The local area plan will take account both of distinct geographic distribution of the communities throughout the proposed HEx Depot area and will involve the Contractors and any relevant third parties and stakeholders, for which there will be co-ordination arrangements.

5.2.4 For the purposes of this LEMP, a third party is an organisation with whom HS2 Ltd has entered into a legal agreement to undertake works on its behalf, to be delivered under the powers of the High Speed Rail (London – West Midlands) Act (the Act), or the third party's own powers (e.g. permitted development). Such agreements require the third parties to comply with the requirements of the Act and the EMRs, including the CoCP. Third parties relevant to this LEMP include Network Rail, Highways England, and utility companies such as Thames Water.

5.2.5 Ongoing engagement with local interests and community groups will occur during construction, as listed in Appendix 2 of this LEMP. (NB: This list is indicative and will be subject to change as more information becomes available).

Advanced notice of works

5.2.6 The Nominated Undertaker and its Contractors are committed to informing communities on matters of interest and relevance. Therefore they will ensure that stakeholders affected by the proposed construction works, as outlined in the ES, will be informed in advance of works by methods outlined in the Community Engagement Framework and as per Section 5.1.4 of the CoCP.

Working hours

Consents

5.2.7 The framework for seeking consents from SBDC and SBC for working hours under section 61 of the Control of Pollution Act 1974 is set out in the CoCP.

Core working hours

5.2.8 Core working hours will be from 08:00 – 18:00 on weekdays (excluding bank holidays) and 08:00 – 13:00 on Saturdays. See also HS2 Information Paper D4: Working Hours.

5.2.9 A period of up to one hour before and up to one hour after core working hours will be required for start-up and close down activities as detailed within the CoCP. To maximise the productivity within the core working hours, the 1hr start up and close down periods will include activities such as deliveries, workforce arrival/departure, unloading, maintenance and general preparation works etc. During this period plant and machinery that is likely to cause disturbance to local residents will not be allowed to operate. This period will not be an extension of the core working hours. Working outside of these hours would need to be agreed through the S61 consenting process with SBC and SBDC. Emergencies (not repairs and maintenance) may be undertaken outside core hours.

5.2.10 Certain work activities at specific locations within the proposed HEx depot site will need to take place outside of the core working hours for safety and engineering purposes.

These work activities (which may include construction associated with station, infrastructure works and rail works, including possessions) will be covered by the section 61 process and are likely to include activities associated with night time possession works including earth works on railway land.

- 5.2.11 To limit the number of possessions that will be undertaken at the HEx Depot site, a protective barrier will be installed where practicable, between the existing railway and HS2 worksites to allow the works to be carried out during core working hours where stipulated clearances can be met. In circumstances where this is not practicable, the work will typically be carried out during possessions either during midweek nights or extended weekend nights. Every effort will be made to reduce work outside of core hours so as to avoid excessive community disturbance.

5.3 Construction site layout and good housekeeping

- 5.3.1 The measures set out in Section 5.3 of the CoCP will be used to reduce the likelihood of an environmental incident or nuisance occurring.

5.4 Site lighting

- 5.4.1 All construction sites will be lit in accordance with the requirements of the CoCP as detailed within Section 5.4 and approval of site lighting in Schedule 17 Part 1 of the Act.
- 5.4.2 Site lighting will be designed to avoid light pollution to surrounding buildings, ecological receptors, structures used by protected species, local residents, railway operations, passing motorists and other sensitive land uses, where reasonably practicable.

5.5 Worksite security

- 5.5.1 The intention is to achieve safe and secure worksites, with balanced and appropriate security measures that are commensurate with the risk, as detailed within Section 5.5 of the CoCP.
- 5.5.2 A security plan will be required for each site and where appropriate, security fencing and gates provided to perimeters of construction locations and site compounds. Fence type and construction will be appropriate to the level of security required and depend upon the likelihood of intruders, level of danger and visual impact to the environment.
- 5.5.3 Contractors will be responsible for ensuring that the site/working areas and plant and materials are secure from use by unauthorised persons at all times and Plant Machinery will be securely locked away and immobilised each night. Securing sites will involve the use of physical, electronic and human resources in a proportionate and cost effective manner.
- 5.5.4 In some situations, particularly in an urban setting, consideration will be given to extra visibility for the public and workforce at night, e.g. use of half-timber / half-infill (i.e. perspex) at hoarding corners together with convex mirror to prevent blind spots. All sites will have security lighting to ensure the safety of passing pedestrians and other traffic.

5.5.5 Security provisions will be deployed at all HS2 sites and working areas on a 24/7 basis, this may include CCTV cameras, alarms and security personnel. This approach will help protect assets with measures that deter, delay and detect intrusion.

5.6 Hoardings, fencing and screening

5.6.1 The site perimeter will generally be fenced with 2.4m high solid hoardings that will be appropriately decorated, in line with measures described within Section 5.6.1 of the CoCP, if appropriate.

5.6.2 Hoardings up to 3.6m high may, on occasions, be used to control construction noise. 3.6m high hoarding has been assumed along edge of the construction site boundary adjacent to the residential communities at the proposed HEx Depot site. At locations where existing fencing may need to be removed, suitable alternatives will be used.

5.6.3 Where there are earthworks along the track, such as cuttings and embankments, temporary fencing will be erected along the site boundaries. The type of fence will be dependent upon the nature of use of the adjacent land, as well as environmental, design and safety considerations.

5.6.4 Opportunities to include temporary landscaping measures including but not limited to green hoardings, ivy screens, artificial ivy and instant hedging will be considered and where reasonably practicable implemented where there are clear benefits to local air quality, biodiversity and visual appearance of the area, taking into account costs, longevity and ease of maintenance.

5.7 Unexploded ordnance

5.7.1 A risk assessment for the possibility of unexploded ordnance being found within construction areas will be carried out, as detailed within Section 5.7 of the CoCP.

5.8 Electromagnetic interference

5.8.1 The impacts of electromagnetic interference during design and construction will be undertaken, as detailed within Section 5.8 of the CoCP.

5.9 Temporary living accommodation

5.9.1 There will be no temporary living accommodation for construction workers at the proposed HEx Depot site.

5.10 Occupational healthcare

5.10.1 The Nominated Undertaker will ensure there is provision for either access to on-site or near site occupational healthcare for site workers, as detailed within Section 5.10 of the CoCP.

5.11 Clearance and re-instatement of sites on completion

5.11.1 This will be carried out as detailed within Section 5.11 of the CoCP.

5.12 Pollution incident control and emergency preparedness

5.12.1 The Contractors' Pollution Incident Control and Emergency Preparedness Plan(s) will need to have due regard to local receptors as detailed in Sections 6 to 16 of this LEMP.

5.12.2 The Contractors' will also consider measures and processes to be implemented in the event of environmental non-conformances.

Local control measures

5.12.3 The Contractors' Pollution Incident Control and Emergency Preparedness Plan(s) will need to include the following pollution prevention and control measures:

- static plant will be used with secondary containment measures such as plant nappies to retain any leakage of fuel or oil and reduce the risk of pollution;
- spill kits will be provided where appropriate to reduce the risk of pollution;
- the use of oil interceptors at site offices and work compounds; and
- appropriate measures such as use of bunds of non-erodible material or silt or sediment fences adjacent to watercourses.

5.13 Fire prevention and control

5.13.1 The Contractor's will ensure all construction sites and welfare facilities will have in place appropriate plans and management controls to prevent fires. See also section 5.13 of the CoCP.

5.14 Extreme weather events

5.14.1 The Contractors' pollution incident control and emergency preparedness plan(s) will need to have due regard to the potential of extreme weather events and key receptors and take into account any proposed risk management or mitigation measures. See also Section 5.14 of the CoCP. Where necessary, the statutory bodies will be consulted with regards to emergency planning.

5.15 Carbon management plans

5.15.1 The Contractor will produce carbon management plans, in accordance with the HS2 Carbon Minimisation Policy as detailed within Section 5.15 of the CoCP.

5.16 Interface management between adjacent construction areas

5.16.1 The Nominated Undertaker will oversee the interface between the Contractors as detailed within Section 5.15 of the CoCP, which may be within the same or adjacent local authority boundaries.

6 Agriculture, forestry and soils

6.1.1 General control measures relating to agriculture, forestry and soils are provided in Section 6 of the CoCP.

6.2 Sensitive receptors

6.2.1 Approximately 10.9ha of agricultural land will lie within the construction boundary of the proposed HEx depot site. All of this land is of the best and most versatile quality in Subgrade 3a.

Approximately 6ha will be required permanently for the Scheme, with 4.9ha restored to agriculture.

6.2.2 The generally high quality soils that will be permanently displaced and reused in the design of the Scheme for agriculture and other uses, represent a sensitive receptor.

6.2.3 Some land uses situated adjacent to the construction boundary may be considered sensitive receptors, particularly in respect of farm infrastructure and crops. This includes interruptions to drainage systems, livestock water supplies and irrigation systems, the potential for dust deposition on crops, particularly field vegetables; interruptions to farm and field accesses; and the maintenance of appropriate stock-proof fencing.

6.3 Local control measures

6.3.1 Where topsoil and subsoil will be stripped across the site, a Soil Resources Plan (SRP) will be prepared. The SRP will establish the type and volume of the topsoil and subsoil to be stripped, the designated location of the stockpiles and the proposed use of conserved soils for land restoration. There is a commitment in the ES for the reuse of soils on the scheme.

6.3.2 In areas where compounds are to be created, it is envisaged that the area will be stripped of topsoil (and sub soil where required). Temporary material stockpiles will be clearly recorded and the topsoil (and subsoil) will be reinstated.

6.3.3 In respect of storage areas for soil and excavated materials, and within the wider construction site, the presence and spread of invasive, non-native species (plants and animals) and noxious weeds will be controlled through the adoption of an appropriate management regime. This will identify and effectively treat areas which might also threaten adjoining agricultural areas.

6.3.4 Appropriate construction, handling, treatment and disposal procedures will be implemented in relation to invasive species and noxious weeds. Route-wide measures will also be implemented to promote bio-security and minimise the risk that invasive non-native species and diseases are spread as a consequence of the project. Further details are provided in the CoCP.

6.3.5 Measures for the protection of farm infrastructure and crops will be the subject of liaison with landowners, occupiers and land agents.

- 6.3.6 Following consultation with individual farmers, arrangements are being made with the farmer and documented in Farmers and Growers' packs. Details on the scope of these packs is included in the HS2 Guide for Farmers and Growers.

7 Air quality

- 7.1.1 General control measures relating to air quality are provided in Section 7 of the CoCP.
- 7.1.2 Contractors will be required to manage dust, air pollution, odour and exhaust emissions during the construction works in accordance with Best Practicable Means (BPM) and refer to current publications on 'best practice'³.

7.2 Sensitive receptors

- 7.2.1 The Contractor's working methods will have due regard to local sensitive receptors where there may be impacts due to dust emissions from construction works and exhaust emissions of air pollutants from construction traffic vehicles travelling to and from construction areas.
- 7.2.2 For air quality, relevant sensitive receptors include locations where there are residential properties, other types of property where there is human exposure over extended periods, for example hospitals and schools, and locations where there are designated ecological sites with sensitive vegetation. The potential impacts are considered in terms of dust soiling on people and property; human health effects of dust and air pollutant emissions; and effects of dust deposition on vegetation.
- 7.2.3 The construction works within SBC and SBDC in the proposed HEx Depot area have been assessed to determine the risk of impacts due to construction dust. The areas surrounding construction works have been classified as 'low', 'medium' and 'high' risk using the Institute of Air Quality Management (IAQM) methodology⁴, in relation to emissions of dust from construction and demolition activities. Sensitive receptors are located within 20m of the site boundary and of dust generating activities along certain sections of the route. Those adjacent to the proposed HEx depot site include receptors within the Mansion Lane Caravan site and residential mooring on the Grand Union Canal. The mitigation measures as set out in the CoCP will be employed.

7.3 Local control measures

- 7.3.1 All the relevant methods outlined within the CoCP will be applied to control and manage potential air quality effects. These methods are considered to be sufficiently effective within areas in and around those listed in Section 7.2.2. In SBC and SBDC the measures will include compliance with the required vehicle and NRMM emissions requirements; the provision of dust suppression measures to be carried out in all areas of the site that are likely to generate dust; measures to keep roads and accesses clean; covering materials, deliveries or loads entering and leaving the construction site;

³ Guidance on the assessment of dust from construction and demolition: Institute of Air Quality Management (IAQM), February 2014
Air Quality Monitoring in the Vicinity of Demolition and Construction Sites: IAQM, November 2012

The Control of Dust and Emissions during Demolition and Construction: GLA Supplementary Planning Guidance Document, July 2014

⁴ Guidance on the assessment of dust from construction and demolition: Institute of Air Quality Management (IAQM), February 2014

buildings or structures to be demolished will be sprayed with water or screened as necessary, prior to and during demolition and the enclosure, shielding or provision of filters on plant likely to generate dust beyond the site boundaries.

- 7.3.2 Dust suppression measures and works screening will be subject to approval in accordance with Schedule 17 of the Act. Further measures are detailed within Section 7 of the CoCP.
- 7.3.3 HS2 has set emission requirements and targets for the engines of Contractor cars, vans, and heavy road vehicles. These have been developed for the whole route and are categorised as follows: London Low Emission Zone, Clean Air Zone and Rest of Route.
- 7.3.4 For the HEx Depot area the relevant category of vehicle emission standard is the 'Rest of Route'. Within the 'Rest of Route' category, there are requirements for heavy road vehicles to be powered by EURO VI (or cleaner) engines (as far as reasonably practicable; 100% from 2020) and for cars and vans to be Euro 6 diesel and Euro 4 petrol⁵. There are also targets for the use of Ultra Low Emission Vehicles.
- 7.3.5 The HS2 Information Paper E31: Air Quality gives further information on the HS2 emissions standards.
- 7.3.6 HS2 has also set requirements for Non-Road Mobile Machinery (NRMM) (i.e. stationary plant and off road vehicles). These have been developed for the whole route and are categorised as follows: Central Activity Zone, Rest of Greater London and Rest of Country. For the proposed HEx Depot area, the relevant category of NRMM emission standard is Rest of Country. Within the Rest of Country the requirement is for NRMM to be powered by EU stage IIIB engines from 2017 (and EU stage IV from 2020).

7.4 Monitoring Procedures

- 7.4.1 An inspection monitoring programme will be implemented by the Contractor to assess the effectiveness of the control measures as outlined in section 7.3 in the CoCP. In the proposed HEx Depot area, the monitoring procedures may include continuous automatic monitoring of airborne dust, including the setting a relevant site action level for dust (defined as a dust measurement threshold above which investigation will be required). The monitoring being undertaken by HS2 supplements existing air quality monitoring which is part of national and local authority surveys.
- 7.4.2 The monitoring programme, including locations for dust monitoring is in the process of being agreed. Monthly reports of monitoring data from HS2 air quality surveys will be made publicly available throughout construction on the HS2 website at this address: <https://www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2>.
- 7.4.3 The HS2 Air Quality Strategy gives further information on monitoring, including the process to determine where monitoring would be required and the monitoring methods to be used. This document is available at the same website address as referenced in paragraph above.

⁵ Euro standards for heavy vehicles are given in terms of roman numerals. Euro standards for light vehicles are given in terms of numerical values and different Euro standards apply for petrol and diesel vehicles.

8 Cultural heritage

- 8.1.1 General control measures relating to cultural heritage are provided in Section 8 of the CoCP. Further control measures for Cultural Heritage are provided in the Hs2 Phase One Heritage Memorandum within the Environmental Minimum Requirements and the specific documents identified therein.
- 8.1.2 A route-wide Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy (GWSI:HERDS) has been prepared which sets out the general principles for design, evaluation, mitigation, analysis, reporting and archive deposition to be adopted for the design development and construction of the Scheme.
- 8.1.3 Works associated with the Scheme may affect non-designated assets at the proposed HEx Depot area. Full details of the works to be undertaken (i.e. archaeological investigations and built heritage recording) will be determined during the detailed design and will be set out in Project Plans and Location -Specific Written Scheme of Investigations (LS-WSI).
- 8.1.4 Schedule 18 and Schedule 19 to the Act concern how legislation in respect of listed buildings and scheduled monuments respectively apply to the Phase One works. Schedule 20 to the Act provides a regime for the removal of human remains and related funerary monuments.

8.2 Sensitive receptors

- 8.2.1 There are no designated heritage assets located within or adjacent to the Scheme in this area.
- 8.2.2 Details of all designated and non-designated heritage assets within 500m of the land required, temporarily or permanently, for the construction of the scheme are listed in Volume 5 of the SES and AP2 ES (Appendices HEX-CH-002 and Maps CH-01-HEx and CH-02-HEx).

8.3 Local control measures

- 8.3.1 Where practicable, construction methodologies will be required to reduce the impacts on heritage assets. The CoCP sets out the provisions that will be adopted to control those effects, including the use of appropriate equipment and methods to limit ground disturbance and settlement followed by monitoring, protection and remediation. A programme of settlement monitoring and the implementation of avoidance measures where appropriate will be undertaken by the Contractor. Detailed provisions with regard to settlement and listed buildings are outlined in the Settlement Policy / HS2 Information Paper: C3 Ground Settlement.
- 8.3.2 Where practicable, below ground assets will be preserved in situ beneath mitigation earthworks through the adoption of appropriate design measures.
- 8.3.3 Where practicable, construction methodologies will reduce the impacts on buried and upstanding remains.

8.3.4 The programme of archaeological and built heritage works will be undertaken by a specialist Contractor appointed by the Nominated Undertaker prior to and during, the construction period in accordance with the provisions of the Location-Specific Written Scheme of Investigation for archaeology and built heritage.

8.4 Monitoring

8.4.1 Risk assessments, appropriate structural and/or condition surveys and vibration monitoring will be undertaken at locations of archaeological or built heritage interest adjacent to construction sites, prior to, during and following construction works, as detailed within Section 8.4 of the CoCP.

9 Ecology

9.1.1 General control measures relating to ecology are provided in Section 9 of the CoCP.

9.2 Sensitive receptors

9.2.1 There are no sites designated for nature conservation located within or adjacent to the proposed HEx depot site.

9.2.2 Sensitive habitat receptors outside of designated sites are displayed within the Volume 5 map books of the SES and AP2 ES (map EC-02-HEx). These include:

- Mosaics of habitats including various complexes of woodland, scrub, semi-improved neutral grassland, tall ruderal vegetation, ephemeral/short perennial, waterbodies/watercourses in differing proportions;
- One pond within the site boundary and at least six ponds, seven water filled ditches, and 15 water filled scrapes on land adjacent to the depot site; and
- Grand Union Canal, Slough Arm, with adjacent habitats including grassland, scrub, tall ruderal, and scattered mature trees.

9.2.3 Key protected or important species known or assumed to occur in the vicinity of the works are:

- Great crested newt;
- Common reptiles,
- Birds;
- Bats;
- Terrestrial invertebrates; and
- Badgers.

9.2.4 Further information on legally protected species that may occur in this area can be found within Volumes 4 and 5 of the SES and AP2 ES.

9.2.5 Contractors will check whether any protected species licences are required prior to work commencing or where such licences have been obtained, to ensure compliance with the requirements of the licence.

9.2.6 All actions required to comply with licences, will be undertaken by suitably qualified specialist ecologists licensed to undertake the work.

9.3 Local control measures

9.3.1 The standard ecological issues and associated control measures outlined in **Table 1** are of particular relevance to this area.

Table 1: Standard ecological issues and control measures relevant to this area

Receptor	Issue	Standard control measure
Bats	All UK bat species and their roosts (even if bats are not present) are fully protected under both UK and European legislation. The Scheme will result in the loss of confirmed bat roosts in trees and buildings.	1) Adhere to requirements of licences and, where relevant, Ecology Site Management Plans.
	The Scheme will result in the loss of trees and buildings identified as having moderate or high potential to support roosting bats, but no evidence of their use has been recorded to date through survey work.	1) Adopt precautionary approach. Follow appropriate Working Method Statement for demolition of buildings and felling of trees.
	The Scheme will result in the loss of and disruption to bat foraging areas and commuting routes.	1) Where practicable, undertake activities causing loss or disruption during seasonal periods when bats are likely to be less active. 2) Retain as much of the key habitat for as long as possible and establish new areas as quickly as possible to reduce the effects. 3) Ensure lighting is directed away from foraging areas and commuting routes. 4) Minimise night time working in close proximity to foraging areas and commuting routes.
Breeding birds	The nests and eggs of all bird species are legally protected against being damaged or taken. Some species are specially protected against disturbance whilst nesting.	1) Habitat clearance should be conducted outside of the bird nesting season (March to August inclusive) where practicable. 2) If habitat clearance is carried out during the bird nesting season then an appropriate Working Method Statement shall be completed in

Receptor	Issue	Standard control measure
	The Scheme will result in the loss of nesting bird habitat, including vegetation, buildings and structures.	advance of clearance works commencing.
Great crested newt	Great crested newts and their habitats are fully protected under both UK and European legislation. The Scheme will result in the loss of water bodies and terrestrial habitat used by great crested newts.	1) Adhere to requirements of HS2 great crested newt organisational licence, method statements, and Ecology Site Management Plans.
Common reptiles	Common species of reptile (grass snake, adder, common lizard and slow worm) are protected from intentional killing or injury. Common reptiles are widespread, and the Scheme will result in the loss of confirmed and potential reptile habitat.	1) Where works have the potential to kill or injure reptiles, but there is suitable habitat immediately adjacent to the work site that could support a viable population (with enhancements where necessary) the Habitat Manipulation and Displacement approach should be followed. A Working Method Statement should be produced in advance of works commencing. 2) Where there is no suitable habitat immediately adjacent to the work site, the Reptile Translocation approach should be followed. A Working Method Statement should be produced in advance of works commencing. This will include details of the approach, any exclusion fencing required, and details of the receptor site.
Badger	Badgers and their setts are protected under the Protection of Badger Act 1992. Badgers are widespread, and the Scheme will result in the loss of badger habitat, including setts.	1) Adhere to the requirements of the HS2 badger organisational licence, method statements, and Ecology Site Management Plans. 2) Avoid badger setts to reduce disturbance where they do not need to be closed. 3) Badgers are a mobile species and can create new setts in a short period of time. Contractors to be aware of the potential for badger setts to be present within or adjacent to work sites – works to be stopped if potential setts are identified and an ecologist contacted for advice.

Receptor	Issue	Standard control measure
General	Unexpected discovery of legally protected species during works.	<p>1) There will be a procedure to follow in the unexpected event that protected species are identified during construction. This will include seeking appropriate licences and consulting with Natural England.</p> <p>2) Unexpected finds of great crested newts or badgers are covered by the organisational licences and works must be in accordance with those licences.</p>

9.3.2 Further information on the control of ecological impacts is provided in HS2 Information Paper E2: Ecological Impact, Section 9 of the CoCP, and in Technical Note: Ecological principles of mitigation within Volume 5 of the SES2 and AP3 ES (Scope and methodology report addendum (CT-001-000/2)).

9.4 Monitoring

9.4.1 Contractors will be required to undertake appropriate monitoring of the consequences of construction works on ecological resources and of the effectiveness of the management measures designed to control ecological effects, as detailed within Section 9.3 of the CoCP.

10 Ground settlement

10.1.1 General control measures relating to ground settlement are provided in Section 10 of the CoCP. Specific measures to reduce and repair settlement and requirements with regard to assessment, surveys and monitoring are contained in the Settlement Policy / HS2 Information Paper C3: Ground Settlement.

10.1.2 The replacement floodplain storage area at the HEx depot site will be excavated to a maximum depth of 2.5m adjacent to the canal. Excavation in this area will be designed and constructed in such a way as to ensure that there will be no increased risk of structural instability of the canal embankment leading to settlement or failure.

10.1.3 Requirements for monitoring will be confirmed by the settlement report prepared during the detailed design stage. Where determined as necessary, monitoring will be undertaken on selected adjacent buildings, structures and the conventional railway tracks. Baseline readings will be taken prior to the commencement of excavation.

10.1.4 The monitoring strategy, methodology and programme, including the choice and location of monitoring equipment, will be discussed and agreed with the local authorities and land/building owners prior to commencement of construction.

10.1.5 Where significant buildings tensile are predicted to be caused by excavation induced ground movements, ground treatment/improvement techniques might be required to

ensure that if ground movement occurs, it stays within agreed and acceptable limits thereby limiting the impacts on buildings.

10.1.6 Monitoring might be required where existing sensitive buildings/structures/utilities are in close proximity to the planned excavation works. An assessment of the sensitivity of each building/structure/utility in close proximity to the excavation works will be carried out at the detailed design stage. This will then inform the design/specification of the monitoring system for that building/structure/utility and will also inform the design of any movement mitigation works if these are deemed necessary by the designer.

10.1.7 Prior to the commencement of construction, structural surveys and condition/defect surveys will be commissioned where structures are at likely risk of potentially damaging settlements.

11 Land quality

11.1.1 Further land quality study work including intrusive ground investigation (where needed) and analysis will be conducted prior to construction in order to confirm areas of suspected land contamination that could be disturbed or encountered during construction of the Scheme. Contaminated sites beyond the Scheme will be considered only in terms of potential impact on the Scheme. For the purposes of this LEMP it is assumed that no new land quality constraints will be identified during these pre-construction surveys. If new constraints are identified then the LEMP would be updated accordingly. No contaminated sites (in accordance with the meaning defined in Part IIa of the Environmental Protection Act, 1990) have been formally identified by the Regulator (in accordance with and the Contaminated Land (England) Regulations 2000) within the Scheme.

11.1.2 General control measures relating to land quality are provided in Section 11 of the CoCP.

11.2 Potential contamination sources and sensitive receptors

11.2.1 The following land with potentially contaminative existing or historical uses has been identified as a prospective contaminative risk to HS2 works:

- Existing on-site railway land and Langley Station;
- Former on-site oil depot, located within the western end of the proposed HEx depot site;
- Former Hollow Hill Lane and Iver landfill sites located east of Hollow Hill Lane and north of the Grand Union Canal;
- Thorney Lane, Iver and Hollow Hill Lane landfill sites, located within the area the HEx depot east connection trackwork will be constructed;
- Mansion Lane, Hollow Lane, Langley Park Road and Langley landfills located

north of the Grand Union Canal; and

- Former off-site concrete works, railway land, engineering works and other previous contaminative land uses.

11.2.2 With regard to the above identified contaminative risks, the Contractors will have due regard to the following sensitive receptors:

- people, including residents in existing properties, local employees, construction and/or maintenance workers;
- controlled waters, including Horton Brook, Grand Union Canal and groundwaters in the Chalk bedrock (principal aquifer) and various Secondary aquifers;
- the built environment, including buildings, property and underground structures and services;
- mineral resources; and
- the natural environment.

11.3 Local control measures

11.3.1 Ground investigations are being undertaken to assess areas of potential contamination within the Scheme. Following development of a conceptual site model a risk assessment and remedial strategy will be prepared, as needed. Consultation with SBC, SBDC and the Environment Agency will take place, as appropriate, during the formulation of any remedial strategy, which will include measures to be taken if unexpected contamination is encountered as outlined in Section 11 of the CoCP.

11.3.2 Contaminated soils excavated from the site are to be separated from other materials and treated, as necessary. Where reasonably practicable, material will be reused within the Scheme, where it is suitable for use. Treatment techniques could include stabilisation methods, soil washing, appropriately permitted bio-remediation to remove oil contaminants and disposal off site. Contaminated soil disposed off-site will be taken to a soil treatment facility, another construction site (for licensed treatment, as necessary, and reuse) or an appropriately permitted landfill site.

11.3.3 Excavation through the former oil depot and historical landfill within the proposed HEx depot site will be required. Should the ground investigation discover contaminated materials within the area required to construct the works in these locations, it will be excavated, then treated and re-used, or removed, as appropriate. In addition ground (landfill) gases and/or leachate protection or control systems will be constructed where necessary to manage egress from the Scheme and/or to control migration pathways external to the works where those pathways have been affected unacceptably by the construction.

11.3.4 Similar measures will be undertaken at other sites within the Scheme where contaminated soils or groundwater are identified during the investigation and impacted by the construction processes. Where piled foundations or penetrative ground improvement is to be undertaken, appropriate guidance will be adhered to,

including the Piling and Preventative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention⁶.

- 11.3.5 Similar measures will be undertaken as needed at any other sites where contaminated soils or groundwater are identified during the investigation and / or construction processes.

11.4 Minerals

- 11.4.1 The Scheme crosses a Mineral Safeguarding Area in the SBDC, including those for sand and gravel. Some of these minerals have already been taken and some others may have been compromised by landfilling.

- 11.4.2 Mitigation of potential sterilisation impact on these mineral resources can include prior extraction of the resource for use within the project or elsewhere. Practicable extraction may be limited to areas of environmental mitigation within the Scheme. A plan will be discussed in advance of the construction works with the landowner and/or mineral owner, the mineral planning department at Buckinghamshire County Council and any other interested parties to assist in achieving an effective management of minerals within the location of the affected Mineral Safeguarding Areas as well as Preferred Areas and Areas of Search.

12 Landscape and visual

- 12.1.1 General control measures relating to land quality are provided in Section 12 of the CoCP.

12.2 Sensitive receptors

- 12.2.1 With reference to the set-up and location of temporary works, the Contractor will have due regard to limiting impacts of the character of the Iver Heath Mixed Use Terrace (south) landscape character area (LCA) (The LCA are shown on map LV-02-HEX in the SES and AP4 ES Volume 4: Off-route Effects Map Book).

- 12.2.2 The Contractors will also have due regard to limiting visual intrusion on the following visual receptors:

- Residential receptors consisting predominantly of properties on the fringe of settlements to the north and south of the proposed HEX depot site, as well as residential moorings on the Grand Union Canal;
- Recreational receptors, located on PRow across the study area and boat users on the Grand Union Canal;
- Drivers and those travelling on the roads through the study area, such as Hollow Hill Lane; and
- Employment receptors, including commercial users on Thorney Land and off

⁶ Environment Agency (2001), Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution

the B470, Station Road.

12.3 Local control measures

12.3.1 Measures that have been incorporated into the CoCP to avoid or reduce landscape and visual effects during construction include the following (see Volume 5):

- maximising the retention and protection of existing trees and vegetation where practicable, including that parallel to the Grand Union Canal;
- use of well-maintained hoardings and fencing;
- designing lighting to avoid unnecessary intrusion onto adjacent buildings and other land uses;
- replacement of any trees intended to be retained which may be unintentionally felled or die as a consequence of construction works;
- appropriate implementation, establishment and maintenance of planting and seeding works and implementation of landscape management measures, to continue through the construction period as landscape works are completed;
- temporary bunds to be positioned to screen views to the route construction;
- involvement in the specific location of construction compound layouts and site access in relation to existing vegetation to reduce visual impacts where practicable; and
- the specific location of temporary material stockpiles to reduce visual impacts.

12.4 Trees

12.4.1 The Contractor will give consideration to where trees and other planting can be established early in the construction programme. For example, where trees require removal due to utility works early in the programme, replacement trees will be provided at the earliest possible opportunity, where reasonably practicable. The Nominated Undertaker will ensure any early planting during construction is maintained to promote healthy growth.

12.4.2 Where practicable, the Contractor will carry out surveys and determine the details of tree retention and protection measures, in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations, in advance of any works in the vicinity of trees.

12.5 Site Buildings for Office and Welfare

12.5.1 Buildings will generally be of a temporary modular type; they will typically be multi-storey to maximise construction space and limit land take.

13 Noise and vibration

13.1.1 General control measures relating to noise and vibration are provided in Section 13 of the CoCP and additional information is provided in Information Paper E23: Control of construction noise and vibration.

13.2 Sensitive receptors

13.2.1 Noise and vibration construction assessment locations, at sensitive residential and non-residential properties, are identified in the SES and AP2 on map SV-03-HEX within Noise and Vibration Volume 5 map book (ref.: ES 3.5.18). For further details of these receptors and the potential adverse impacts identified, refer to the SES and AP2 ES Volume 5, Appendix HEX-SV-001.

13.2.2 Noise insulation will be offered for qualifying buildings as defined in the noise insulation and temporary rehousing policy within HS2 Information Paper E23. Noise insulation or ultimately temporary rehousing will avoid residents being significantly affected by levels of construction noise inside their dwellings.

13.2.3 Qualification for noise insulation and temporary re-housing will be identified prior to seeking prior consent from the local authorities under Section 61 of the CoPA. Qualifying dwellings will be identified early enough so that noise insulation can be installed, or temporary rehousing provided, before the start of the works predicted to exceed noise insulation or temporary rehousing criteria.

13.2.4 The following have been reported in the SES and AP2 ES as likely to qualify for noise insulation measures:

- 15 buildings (24 dwellings) on Southwold Spur, Langley;
- 13 buildings (46 dwellings) in Mead Avenue, Langley;
- 7 buildings (67 dwellings) in Maplin Park, Langley; and
- 25 dwellings in the Mansion Lane and Dudley Wharf Caravan Sites at Hollow Hill Lane, Langley and at the moorings for canal boats on the Grand Union Canal in the vicinity of Hollow Hill Lane, Langley.

13.2.5 Mobile homes and houseboats will be treated on a case-by-case basis. Given that noise insulation does not typically represent a viable option for mobile homes, where eligibility is confirmed, appropriate alternative mitigation measures will be adopted. The sorts of measures that will be considered include works management methods (e.g. adopting quiet times, rescheduling works, and imposing noise limits), or where this is not effective or appropriate, temporary re-housing will be offered.

13.2.6 There are no non-residential sensitive receptors for which the SES and AP2 ES has reported likely adverse impacts from construction noise.

13.3 Local control measures

13.3.1 Site specific best practicable means measures to control noise and vibration will be identified through the Parliamentary process and discussions with SBC and SBDC, and reflected in revisions to this document. Furthermore, site specific measures will be

identified by the works Contractor on a site-by-site and activity-by-activity basis and agreed with SBC and SBDC through the Section 61 process. As identified in the SES and AP2 ES, examples of best practicable means measures that may be employed by the Contractor to control noise and vibration include:

- additional height hoardings which may, on occasion, be used to control construction noise. These will be subject to approval in accordance with the requirements of Schedule 17 Part 1 of the Act;
- arranging the layout of compounds to reduce noise impacts where construction compounds are in close proximity to noise sensitive receptors. This may include placing any stacked portacabins between noisy works and sensitive receptors; and
- controlling noise and vibration at source - for example the selection of quiet and low vibration equipment, review of construction programme and methodology to consider quieter methods.

13.3.2 Local control measures will be periodically reviewed, including following any material changes in the proposed construction method and appointment of the works Contractor.

13.4 Monitoring

13.4.1 The Nominated Undertaker requires its Contractors' to undertake and report such monitoring as is necessary to ensure and demonstrate compliance with all noise and vibration commitments and the requirements of the CoCP. These can be found on the HS2 website at this address: <https://www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2>.

13.4.2 The locations at which the SES and AP2 ES has reported adverse impacts from construction noise and/or vibration will be used as the basis of the initial discussions with SBC and SBDC for pre- construction baseline monitoring at specific locations. It should be noted that alternative locations may be identified as a result of these discussions.

13.4.3 As set out in section 4.3.10 of the CoCP, where the nominated undertaker's Contractors are monitoring noise, dust and air quality with equipment capable of streaming data in real time, this will be made available to SBC and SBDC, if a written request is made. In addition, monthly noise monitoring reports will be made publicly available throughout construction. The monthly reports will include information such as measurement methodology and monitoring locations.

13.4.4 All sound and vibration monitoring equipment should hold a valid calibration certificate issued by either a United Kingdom Accreditation Service (UKAS) accredited calibration laboratory or equipment manufacturer.

14 Traffic and transport

14.1.1 Route-wide, local area and site specific traffic management measures will be implemented during the construction of the project on or adjacent to public roads,

bridleways, footpaths and other Public rights of way (PRoW) affected by the Scheme as necessary. These measures are guided by Section 14 of the CoCP.

14.1.2 The CoCP sets out a number of measures to ensure the impacts from construction traffic on the local community are reduced by its Contractors where reasonably practicable:

- A Route-wide Traffic Management Plan (RTMP) setting out generic traffic management measures to be implemented during the construction of the project;
- The Local Traffic Management Plans (LTMP) will set out matters such as planned worksites, lorry routes and the programme of major traffic management measures expected to be necessary within particular areas along the route;
- Contractors will prepare site specific traffic management measures, which will be subject to consultation and, as necessary, consent;
- Contractors will prepare construction workforce travel plans with the aim of encouraging the use of sustainable modes of transport to reduce the impact of workforce travel on local residents and businesses;
- For road cleanliness Contractors will be required to use all reasonably practicable measures to avoid/limit and mitigate the deposition of mud and other debris on the highway; and
- HS2 will require its Contractors to undertake such appropriate monitoring as is necessary to ensure compliance with the requirements of the CoCP, and this will include the maintenance of records of traffic management measures installed.

14.1.3 Information relating to construction traffic is also provided in the following Information Papers:

- D11: Maintaining access to residential and commercial property during construction;
- E13: Management of traffic during construction; and
- E14: Highways and traffic during construction – legislative provisions.
- E30: Vehicle flow management and safety requirements during construction.

14.2 Local control measures

Sensitive Receptors

14.2.1 In relation to traffic and transport, key sensitive receptors will need to be considered when the Contractor develops the overall programme within the LTMP and the site specific traffic management schemes.

14.2.2 Requirements for considering how impacts can be mitigated, as far as reasonably practicable, will be addressed appropriately through the development of the LTMPs or

site specific measures and discussed at the Local Traffic Liaison Group meeting, established in accordance with the CoCP and the Route-wide Traffic Management Plan.

Site access

- 14.2.3 A number of vehicle access points to the construction sites will be required so construction vehicle movements will be spread over a number of roads within the area of works within SBC and TRDC. Highway access notifications and/or approvals will be undertaken in accordance with Schedule 4 of the Act.
- 14.2.4 Routes for construction traffic will be subject to approval of the relevant planning authority in accordance with the Schedule 17 of the Act when large construction vehicle movements exceed 24 single movements (12 two way movements) per day to and/or from a site.

14.3 Works to the Highway and Access Measures

- 14.3.1 The SES and AP2 noted that no temporary road closures and diversions are likely to be required. However; Hollow Hill Lane will be reduced to a single lane with two way traffic light control for a period of three months during the road realignment works.
- 14.3.2 Alternative routes for the following PRow will be required, namely:
- IVE/15A/1;
 - IVE/17/5; and
 - WEX/18/3, including the canal towpath.
- 14.3.3 However these diversions will be short term (typically over periods of not more than a few days).
- 14.3.4 All temporary closures and diversions will be subject to submissions and notifications to the relevant highway authority.

14.4 Monitoring procedures

- 14.4.1 Each Contractor will be responsible for monitoring to ensure compliance with the RTMP, LTMP, the requirements of the provisions of the Act, assurances and undertakings, site specific drawings and site specific traffic requirements and conditions.

15 Waste and materials

- 15.1.1 All waste will be managed in accordance with the waste hierarchy which aims to reduce waste at source and to reduce the quantity that requires final disposal to landfill. This applies to excavated material arising on-site, which will be reused within the Scheme as far as reasonably practicable, as well as material from demolition and construction activities. This approach is described in greater detail in HS2 Phase One Information Paper E3: Excavated Material and Waste Management and in Section 15 of the CoCP.

15.2 Local control measures

Testing and classification of materials

- 15.2.1 The 'basic characterisation'⁷ of excavated material will be determined by the Contractor to ascertain the potential for reuse, recycling, recovery or disposal to inert, non-hazardous or hazardous landfill.
- 15.2.2 A Materials Management Plan will be developed in accordance with the Definition of Waste: Development Industry Code of Practice⁸ to set out the processes to be adopted in respect of the reuse of excavated materials either on the Scheme or transferred to another development site.
- 15.2.3 In the event that excavated material is to be sent for disposal, which shall be the option of last resort, testing and classification of will be undertaken by the Contractor in line with the Environment Agency's guidance. This includes:
- Waste Sampling and Testing for Disposal⁹;
 - WM3 – Guidance on the classification and assessment of waste (1st edition 2015)¹⁰.

Transport of waste and materials

- 15.2.4 Opportunities for the off-site re-use of surplus excavated material will be identified and utilised where reasonably practicable. Surplus excavated material will only be sent to landfill as an option of last resort. Further information on the management of material and waste is provided in HS2 Information Paper E3: Excavated Material and Waste Management.

16 Water resources and flood risk

- 16.1.1 General control measures relating to water resources and flood risk are provided in Section 16 of the CoCP.

16.2 Sensitive receptors

- 16.2.1 The Contractor will have due regard to the following sensitive local water resource receptors:
- Local aquifers, including: Lynch Hill Gravel (Secondary A aquifer); Taplow Gravel (Principal aquifer), Lambeth Group (Secondary A aquifer); and Chalk Group (Principal aquifer);
 - SPZ's associated with two public water supply abstraction licences, located

⁷ Basic characterisation' refers to the characterisation of excavated material to help define the type of re-use for which it is suitable (e.g. DMRB soil classes). Characterisation of waste would include the allocation of an EWC code (in accordance with The List of Wastes (England) Regulations 2005 SI No. 895) and a detailed evaluation of the waste properties. The latter is based on a combination of the detailed knowledge of the source process and chemical testing.

⁸ CL:AIRE Definition of Waste: Development Industry Code of Practice, version 2, March 2011

⁹ Environment Agency (2013), *Waste Sampling and Testing for Disposal to Landfill, March 2013*.

¹⁰ Environment Agency (2015), *Technical Guidance WM3 – Guidance on the classification and assessment of waste (1st edition 2015)* (1st Edition 2015).

3.8km and 4km to the west of the site;

- Surface water features, including: Horton Brook, a Main river; and two unnamed Ordinary watercourses;
- Abstractions including: one surface water abstraction licence on the Horton Brook; and one groundwater abstraction from the chalk aquifer; and
- Artificial water bodies: including: Grand Union Canal, Slough Arm.

16.2.2 The Contractor's Pollution Incident Control Plan will have due regard to the local flood risk sources (i.e. surface, artificial, groundwater and sewers) and key receptors and take into account any proposed risk management or mitigation measures.

16.2.3 The Contractor will have due regard to the following local flood water receptors and their respective flood histories:

- Surface water - Slough Borough Council PRFA and Surface Water Management Plan suggests that there are areas within the depot boundary that are at risk of surface water flooding, in particular, along the Horton Brook and on the upstream side of the existing GWML railway embankment. The extent of the risk of flooding from surface water falls within the flood zones associated with the Horton Brook;
- Grand Union Canal - there is a risk of flooding in the event of a breach in the Grand Union Canal embankments to the north of the proposed depot; and
- According to the Environment Agency Reservoir Inundation Map, there is an additional risk of flooding along the Horton Brook valley in the event of failure of Black Park Lake, approximately 3km upstream. Stagnant (<0.25m/s velocity) flooding of up to 2m depth is shown to the northern side of the existing GWML embankment.

16.3 Potential sources of contamination

16.3.1 Potential sources of contamination are detailed within Section 11 of this LEMP.

16.4 Local control measures

16.4.1 Measures identified in Section 16 of the CoCP, including detailed method statements, will aim to reduce potential adverse effects on surface water or groundwater quality or flows associated with construction; this will include release to groundwater, watercourses of surface water sewers in the surrounding receptors.

16.4.2 As outlined in the CoCP, best practice measures will be used (e.g. through the use of silt traps and appropriate attenuation, if required) prior to the discharge of water to watercourses, groundwater or surface water sewers, subject to obtaining the required permits or consents. This could apply to runoff from wheel washing facilities or from general construction activities. As noted in Section 5.7 of this document, a pollution incident control plan will be produced which will incorporate procedures for alerting relevant water supply companies and reducing impacts to public supply SPZ's and local private abstractions in this area.

16.4.3 Given there is the possibility that work may affect aquifers, a groundwater monitoring plan will be implemented, as outlined in Section 16 of the CoCP.

- 16.4.4 A programme of groundwater and surface water monitoring will be undertaken prior to, during and following completion of the construction works. The monitoring programme scope and duration will be developed and agreed with the Environment Agency and where appropriate in consultation with relevant stakeholders.
- 16.4.5 If dewatering from excavations is required, it will be carried out in consultation with the Environment Agency and will take into consideration risks posed to water quality or quantity.
- 16.4.6 If required, appropriate guidance will be adhered to, including the Piling and Preventative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention¹¹. Groundwater and surface water monitoring plans will be prepared, where piling could affect below ground contamination.
- 16.4.7 Temporary excavated material stockpiles, construction compounds and site offices will be located outside of areas at risk of flooding where reasonably practicable, to avoid having an impact on the risk of flooding. Where construction compounds cannot be located outside flood risk areas, there will be a site specific flood risk management plan prepared prior to construction to manage the potential risks. These plans will take account of the flood risk assessments produced for the SES and AP₂ ES and SES₃ and AP₄ ES and include any proposed risk management or mitigation measures, if required.
- 16.4.8 Drainage from the works will be attenuated and discharged to watercourses or sewers, under agreement, at a controlled rate and, where required, with approval of the Environment Agency and, where appropriate, the drainage authority in accordance with Schedule 33 Part 5 of the Act.
- 16.4.9 Additional information, such as how the Scheme complies with the Water Framework Directive, as well as further provisions for engagement with stakeholders, monitoring and protection of local water resources are outlined in HS2 Information Paper E1: Control of Environmental Impacts and HS2 Information Paper E4: Water resources and flood risk.

¹¹ Environment Agency (2001), Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution

Appendix 1: Glossary of Terms

AP	Additional Provision
CFA	Community Forum Area
CoCP	Code of Construction Practice
Contractor	The Contractor on a construction site responsible for planning, managing and co-ordinating themselves and/or the works and all other sub- contractors working on their site, or any other contractor directly employed by the Nominated Undertaker to undertake key construction works on site.
CoPA	Control of Pollution Act 1974
ES	Environmental Statement
EMS	Environmental Management System
HEX	Heathrow Express
HGVs	Heavy Goods vehicles
HS2	High Speed 2
HS2 Ltd	High Speed Two Limited - is a company wholly owned by the Department for Transport, established in 2009 to develop plans for a new high speed network and present a proposed route connecting London - West Midlands.
IAQM	Institute of Air Quality Management
LCAs	Landscape character areas
LEMP	Local Environmental Management Plan
Nominated undertaker	The body or bodies appointed to implement the powers of the Act to construct and maintain the railway.
PRoW	Public rights of way
RRVs	Road Rail Vehicles. A vehicle which can operate both on rail tracks and road, often used for railway maintenance

RTMP	Route-wide Traffic Management Plan
Section 61	Section 61 of the Control of Pollution Act 1974 (which sets out procedures seeking and obtaining local authority consent to measures for the control of noise and vibration on construction sites).
SBC	Slough Borough Council
SBDC	South Bucks District Council
SES	Supplementary Environmental Statement
Scheme	The Scheme to which this LEMP relates is the proposed high-speed railway between London - West Midlands. This is a high speed railway between London - West Midlands with a connection via the West Coast Main Line at conventional speeds to the North West and Scotland and to the Channel Tunnel via HS1. It includes four high speed rail stations at London Euston, Old Oak Common (West London), Birmingham Airport (Birmingham Interchange) and Birmingham (Curzon Street).
SFRA	Strategic Flood Risk Assessment
SLI	Site of Local Importance
SMI	Site of Metropolitan Importance
SRP	Soil Resources Plan
TMP	Traffic Management Plan

Appendix 2: Non-exhaustive List of Community Groups in Slough Borough Council and South Bucks District Council

- Businesses at:
 - Langley Connect
 - Canal Wharf
 - Langley Business Centre
 - Langley Quay
 - Langley Railway Station
 - High Line Yachting Ltd, The Boatyard, Mansion Lane
 - Thorney Lane Business Park
- Schools:
 - Parlaunt Primary School
 - Marish Primary School
 - Langley Hall (Upper School)
 - East Berkshire College
 - Iver Village Infant School
 - Iver Village Junior School
- Residents of:
 - Mead Avenue
 - Harvey Road
 - Maplin Park
 - Market Lane
 - Mansion Lane
 - Hollow Hill Lane
 - Thorney Lane South
 - Mansion lane Caravan Site
 - Dudley Warf Caravan Site
 - the Boatyard
 - High Street, Iver

- Langley Park Road
- Wood Lane
- Denham Road
- North Park
- Sutton Lane
- The Orchards Park
- Local government and community associations:
 - Iver Parish Council
 - Iver Heath Residents Association
 - Richings Park Residents Association
 - Iver Community Group
 - Colne Valley Park CIC
 - Friends of Slough Canal

(NB: This list is indicative and will be subject to change as more information becomes available).

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www.gov.uk/hs2